

## REMARKS

Claims 1, 6, 9, 10, 14, 19, and 20 have been amended. More specifically, independent claims 1, 6, and 14 have been amended to specify that one or more surfaces of the radiation/illumination section are coated with an antimicrobial agent. Support for this amendment is found in the as-filed specification, for example on page 5, in the first full paragraph. Claims 9 and 10 have been amended to clarify that other surfaces of the device may also be coated with an antimicrobial agent. Support for this is found in the as-filed specification, for example on page 4, third full paragraph. Claims 19 and 20 have been amended to further define the antimicrobial agent. Support for this is found in the as-filed specification, for example on page 4, third full paragraph.

The Examiner has rejected claims 1-2, 4, 6-15, and 17-20 as unpatentable under 35 U.S.C. §103(a) over Pellin, U.S. Patent No. 4,102,654, in view of Liedbeskind et al, U.S. Patent No. 6,632,805. The Applicant and their attorneys have carefully considered the rejection and believe that the claims as amended are patentably distinct over the cited references.

The '654 patent teaches an ionizer that comprises a dry filter 4, a wet filter 5, a fan 6, a positively charged grid 7, a negatively charged grid 8, a negatively charged venturi 9 and a germicidal tube 10 that generates shortwave ultraviolet radiation.<sup>1</sup> Wet filter 5 may be impregnated with a bactericidal or deodorizing liquid.<sup>2</sup>

The '805 patent teaches water-stable organosilane compounds that can be used to treat various substrates.<sup>3</sup> A wide variety of surfaces can be treated with the organosilane compounds, including air filters,<sup>4</sup> and HVAC systems.<sup>5</sup>

---

<sup>1</sup>Col. 2, lines 28-57.

<sup>2</sup>Col. 2, lines 32-33.

<sup>3</sup>Col. 1, lines 8-11.

<sup>4</sup>Col. 33, lines 14-34.

<sup>5</sup>Col. 36, lines 32-35.

In contrast, the Applicant claims an apparatus in which one or more surfaces of the ultraviolet radiation section of an apparatus for purifying air is coated with a non-volatile antimicrobial agent. The '654 patent does not teach, disclose, or suggest a coating of a non-volatile antimicrobial agent. The bactericidal liquid of the '654 patent is not a coating, but rather is a liquid that is impregnated, or permeated, into the wet filter. The Examiner states that it would have been obvious to substitute the bactericidal liquid of the '654 patent with the water-stable organosilane of the '805 patent. However, a careful reading of the '805 patent reveals that when the organosilane coatings are applied to substrates such as air filters and the like, the substrate is then dried to remove excess solution.<sup>6</sup> Modifying the wet filter of the '654 patent by coating it with an organosilane and then drying the filter would change the principle of operation of the wet filter, and therefore to do so would not be obvious to one of ordinary skill in the art.<sup>7</sup>

Even if the antimicrobial coating of the '805 patent were substituted for the bactericidal liquid on the wet filter of the '654 patent, the cited references would still fail to teach or suggest all of the claim limitations of the amended claims. Neither the '654 patent nor the '805 patent teach, disclose, or suggest modifying the '654 apparatus to achieve the invention of instant amended claims 1, 6, and 14, which require that one or more surfaces of the ultraviolet illumination section is coated with a non-volatile antimicrobial agent.<sup>8</sup> Indeed, the surfaces of the portion of the '654 apparatus containing the ultraviolet source is characterized as a venturi, and the venturi performs dual functions.<sup>9</sup> One function performed by the venturi is that it emits a large quantity of electrons and ionizes the air that

---

<sup>6</sup>Col. 33, line 50, Examples VI and VII.

<sup>7</sup>*In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious).

<sup>8</sup>*In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.").

<sup>9</sup>Col. 2, lines 58-60.

comes into contact with it.<sup>10</sup> One of ordinary skill in the art would understand that, if the surfaces of the venturi were modified by coating the surfaces with an organosilane, that modification may interfere with the ability of the venturi to emit electrons. If a proposed modification would render the prior art apparatus being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.<sup>11</sup> As such, it is respectfully submitted that a prima facie case of obviousness cannot be made for the independent claims.

Applicant therefore believes that amended claims 1, 6, and 14, as well as all claims dependent thereon, are patentably distinct from the '654 and '805 patents, either alone or in combination. Applicant respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. §102 of claims 1-2, 4, 6-15, and 17-20.

The Examiner has rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Pellin, U.S. Patent No. 4,102,654, in view of Liebeskind et al, U.S. Patent No. 6,632,805, in further view of Smith, WO 92/20974. Claim 3 is dependent upon claim 1 and Applicant believes that amended claim 1 is patentable over the cited references, and therefore that dependent claim 3 is also patentable.

The Smith PCT publication teaches a disinfectant system for disinfecting an air stream, comprising baffle means and ultra-violet lamp means.<sup>12</sup> The Examiner states that the Smith reference is only used for teaching means for causing turbulence, not for the non-volatile coating. The Smith publication does not teach, disclose, or suggest an air purifying apparatus having an ultraviolet radiation section, where one or more surfaces of the ultraviolet radiation section are coated with a non-volatile antimicrobial agent. Nor does either the '654 patent or the '805 patent teach, disclose, or suggest an air purifying apparatus having an ultraviolet radiation section, where one or more surfaces of the ultraviolet radiation section are coated with a non-volatile antimicrobial agent, as discussed

---

<sup>10</sup>Col. 2, lines 61-64.

<sup>11</sup>*In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

<sup>12</sup>Page 4, line 18 to page 5, line 8.

hereinabove. Therefore, even if the cited references are combined, they do not teach every limitation of the subject claims, because neither of the cited references teach or suggest an air purifying apparatus having an ultraviolet radiation section, where one or more surfaces of the ultraviolet radiation section are coated with a non-volatile antimicrobial agent.<sup>13</sup> Applicant therefore respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. § 103.

The Examiner has rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Pellin, U.S. Patent No. 4,102,654 in view of Liebeskind et al, U.S. Patent No. 6,632,805, an in further view of Eo Ong, GB Patent No. 2,212,370. The Applicant and their attorneys have carefully considered the rejection and believe that claim 16, which depends from claim 15, which depends from amended claim 14, is patentable over the cited references.

Applicant believes that amended claim 14 is patentable over the cited references, and therefore that dependent claim 16 is also patentable. The Eo Ong document teaches an air purifying apparatus that may include an activated carbon filter.<sup>14</sup> The Examiner states that it would have been obvious to modify the apparatus of the '654 reference to include an activated carbon filter. The Eo Ong document does not teach, disclose, or suggest an apparatus where at least one surface of the illumination section is coated with an antimicrobial agent. Therefore, even if the cited references are combined, they do not teach every limitation of the subject claim, because none of the cited references teach or suggest an air purifying apparatus having an ultraviolet illumination section, where one or more surfaces of the ultraviolet illumination section are coated with a non-volatile antimicrobial agent. Applicant therefore respectfully requests that the Examiner withdraw the rejection under 35 U.S.C. § 103.

---

<sup>13</sup>See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (stating that all the claim limitations must be taught or suggested by the prior art to establish prima facie obviousness of a claimed invention).

<sup>14</sup>Page 2, lines 11-13.

Application No.: 10/070,721  
Amendment dated: February 9, 2005  
Reply to Office Action of September 9, 2004

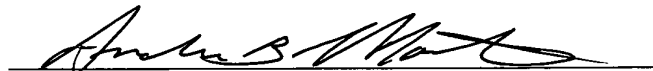
### CONCLUSION

In view of the foregoing amendments and arguments presented herein, Applicant believes that they have properly set forth the invention and accordingly, respectfully requests the Examiner to reconsider and withdraw the rejections provided in the last Office Action. A formal Notice of Allowance of claims 1-4 and 6-20 is earnestly solicited.

In the event an additional fee is required with the filing of this Amendment, the Commissioner of Patents and Trademarks is hereby authorized to withdraw the required funds from Deposit Account No. 18-0987. If a withdrawal is required from Deposit Account No. 18-0987, the undersigned attorney respectfully requests that the Commissioner of Patents and Trademarks cite Attorney Docket Number THC.P0003 for billing purposes.

Should the Examiner deem a telephone call to be beneficial in resolving any remaining matters or to place the claims in better form for allowance, the same would be greatly appreciated.

Respectfully submitted,



Andrew B. Morton, Reg. No. 37,400  
Tama L. Drenski, Reg. No. 50,323  
Renner, Kenner, Grieve, Bobak, Taylor & Weber  
First National Tower - Fourth Floor  
Akron, Ohio 44308-1456  
Telephone: (330) 376-1242  
Facsimile: (330) 376-9646  
E-mail: [morton@rennerkenner.com](mailto:morton@rennerkenner.com)  
Attorney for Applicant

February 9, 2005